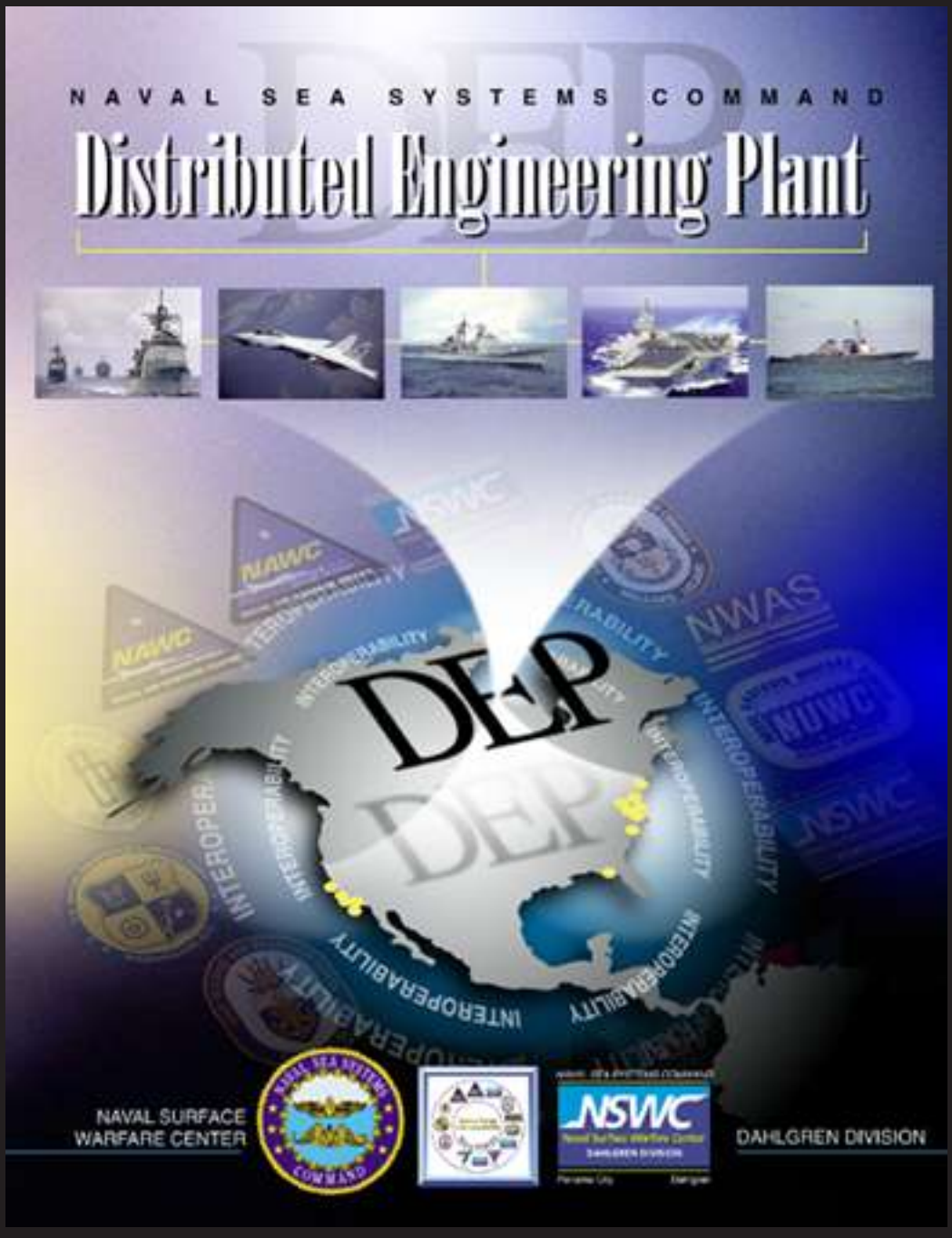
NAVAL SEA SYSTEMS COMMAND
Distributed Engineering Plant
DEP
NAWC
NAWC
NWAS
NUWC
NSWC
INTEROPERABILITY
NAVAL SURFACE
WARFARE CENTER
NSWC
DAHLGREN DIVISION

Overview

Emerging new Theater Warfare systems requirements in conjunction with rapidly advancing combat/BMC4I systems technology have presented the Navy with a challenging task–to integrate its emerging, state-of-the-art warfighting systems to enable the exchange of tactical and strategic data between dissimilar systems. The term "interoperability" describes the effective data exchange between dissimilar combat systems, which are generic to the Navy's aircraft carrier and amphibious battle groups. With today's need for faster, less expensive systems development, we can no longer wait to solve interoperability problems after combat systems have been delivered to the Fleet.

In April 1998, NAVSEA stood up a Navy Task Force to engineer and implement a process for identifying and resolving combat/BMC4I system interoperability problems prior to sending these systems to sea. Today's networking technology allows for the solution–an ashore Distributed Engineering Plant (DEP). By networking the Navy's shore-based combat systems/C4I hardware and inserting system simulation and stimulation data, engineers will now be able to precisely identify and solve interoperability problems ashore well before those systems enter the operating forces.

Prototype Testing Phase

The DEP prototype initially addresses the JOHN F. KENNEDY Battle Group prior to deployment in 1999. Critical operational issues evaluated are:

- *Y2K*
- *Coherent tactical picture*
- *Capabilities and limitations*
- *System interoperability upgrades*
- *Battleforce management*

Current Testing Capabilities

The DEP is able to resolve current and future interoperability problems for the Fleet because it can:

- *Evaluate Tactical Data Link Operations*
  - BG OPTASK Links
  - JFK BG OPTASK Links & ID Supplement
- *Conduct Y2K Compliance Tests*
  - Baseline Test Events plus 9/9/99; 12/31/99; 2/29/00
  - First time in Battle Group environment with multi-TADIL/ multi-Platform
- *Evaluate Battle Group Interoperability Upgrades*
  - Battle Group as it currently exists (ACDS 2.1.2 & AEGIS 5.3.6.4 & 5.0.Z)
    - ECPs & TR fixes between IKE BG & JFK BG
    - Preliminary valuation of ACDS 2.1.3
- *Validate Capabilities and Limitations Documents*
  - DEP first in-depth look for CAPs & LIMs development
  - Major CAPS & LIMs document input

Future Developments

The DEP architecture can support a wide variety of NAVSEA and Joint requirements. With the advent of the collaborative engineering environment, the DEP will support many engineering roles including but not limited to:

- *Developmental Engineering*
  - System Development Tests (Joint/Industry)
  - Collaborative Engineering (Joint/Industry)
    - Concept Definition
    - Sensitivity Studies
    - Design Alternatives
- *Battle Group/Battle Force Test & Evaluation*
- *Industry Interface*
  - Test early designs and development models without proprietary concerns, i.e., "engineer-in interoperability"
- *Navy & DoD Exercises & Training*

Joint	Battle Group/Battle Force
– ASCIET	– JTFEX
– TMDSE	– BFIT
– JPOW	– OPTASK Link
– Foal Eagle	– Fleet Battle Experiments
– Roving Sands	

Land-Based Facilities

The DEP will network together the following land-based facilities to test for interoperability before any new systems are introduced to the Fleet:

- *JFK Battle Group Test Sites*
  - AEGIS Combat Systems Center, Wallops Island, VA
  - AEGIS Training & Readiness Center, Dahlgren, VA
  - AEGIS Computer Center, Dahlgren, VA
  - NSWC PHD ECO, Dam Neck, VA
  - NSWC PHD Integrated Combat Systems Test Facility, San Diego, CA
  - System Integrated Facility, E-2C Lab, SPAWAR Systems Center, San Diego, CA
  - PT Mugu F-14 Lab, NAWC WD, San Diego, CA
  - Navy Tactical Communications Support Activity (NCTSI), San Diego, CA
- *Future Test Sites*
  - NAWC AD, Patuxent River, MD
  - NUWC, Newport News, VA
  - SPAWAR Systems Center, Charleston, SC
  - NWAS, Corona, CA
  - CSS, Panama City, FL

NAVAL SEA SYSTEMS COMMAND
NSWC Naval Surface Warfare Center DAHLGREN DIVISION
Panama City Dahlgren

NSWCDD/MP-99/48: 3/99

For additional information, please contact:
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Human Resources Department, Code PD
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Dahlgren, VA 22448-5100

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